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MEETING OF THE HIGHLANDS COUNCIL

DRAFT SUMMARY
WATER RESOURCES TECHNICAL REPORT ADDENDUM
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Septic System Densities for the Highlands Region

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Septic system density is one of various factors used in determining the land use capability of areas in the Highlands Region. The goals, policies and requirements of the Highlands Act provide guidance on Regional Master Plan approaches relating to septic system density; they are prescriptive regarding the Preservation Area but general regarding the Planning Area. The Highlands Council seeks to achieve two related policy objectives – to restrict increased risks to human health from ground water that exceeds 10 milligrams per liter (mg/L) of nitrates, and to restrict increased human health and ecologic impacts from other pollutants that are associated with nitrates – using the following approach:

1. Use the New Jersey Department of Environmental Protection's (NJDEP) Preservation Area rules at N.J.A.C. 7:38-1 et seq. for septic system density within that area. These nitrate targets are based on statutory requirements for nondegradation, and are supported by further analysis using statistical models.
2. Within the Planning Area, the NJDEP nitrate dilution model should be used with the standard factors for nitrate loading per residential household (or commercial equivalent), but using 2002 drought ground water recharge for each HUC14 subwatershed. The Planning Area median is approximately 9.4 inches per year.
3. The nitrate dilution models should be applied only to the privately-owned, undeveloped, non-preserved lands (referred herein as developable lands) within each subwatershed. The following nitrate targets are proposed for the Planning Area. Actual septic system yields will vary by HUC14 subwatershed based on estimated HUC14 recharge; examples are provided here for information purposes:
    a. Planned Community Zone – **2 mg/L** (NJDEP proposed Statewide threshold. This does not affect existing areas served by sewer or the approved expansion of these facilities.
    b. Conservation Zone – **1.88 mg/L*** (estimated median concentration for the Conservation Zone).
    c. Protection Zone – **0.81 mg/L*** (estimated median concentration for the Protection Zone).
    d. Clustered Development – **10.0 mg/L** (NJDEP proposed Statewide threshold). Applied to the developed portion of the cluster, with application of the relevant Highlands Zone target to the entire project area (i.e., both the developed and undeveloped, preserved portions). Clustering to a higher density would require the use of community-based wastewater systems, not septic systems.

4. Septic system yield in the Planned Community Zone will be determined on a project-specific basis, as most development in the zone will be either sewered or exempt. In the Conservation and Protection Zone, the RMP will provide septic system yields by zone in each HUC14 subwatershed; municipalities will be able to direct the appropriate locations for such development through the Plan Conformance process, within the constraints of other RMP policies.
5. Designated redevelopment sites, brownfields and lakes communities that use septic systems in both the Preservation and Planning Areas are most probably impaired and will require water quality restoration, in coordination with NJDEP; in general they should be protected from further degradation.

(* The median nitrate values by Zone will be finalized upon completion of the Land Use Capability Map (LUCM) zones.)

General Findings

The following findings provide the basis for the Highlands Council's septic system policies:

1. The goals and objectives of the Highlands Act require protection of designated water uses (including both human and ecological uses) in all areas of the Highlands Region. Protection can range from natural quality to strict nondegradation to a range of antidegradation approaches. Restoration is for areas that violate standards, and enhancement is appropriate for areas where waters currently meet standards but can be improved through better land use management or pollution control practices.
2. Septic system density is a useful indicator for the water quality impacts of development in areas that lack community sewer systems. Nitrate concentration is a useful surrogate for the many pollutants discharged by properly functioning septic systems. It is critical to note that addressing nitrates alone will not necessarily address the other related contaminants, requiring the use of conservative assumptions.
3. Septic system density controls are useful for regional planning purposes but do not address site-specific or even neighborhood water quality issues. The risk of localized impacts is reduced as septic system densities are reduced, but risks will still exist due to site layout, local geological conditions, well construction, etc. Guidance to municipalities on these issues would be valuable in reducing site-specific risks.
4. Allowable septic system densities for new development should be tailored to each LUCM zone, recognize the legislative distinction between the Preservation and Planning Areas, and address issues such as lakes communities, brownfields and redevelopment sites where a combination of restoration and alternative treatment technology may be appropriate.
5. Allowable septic system densities should be calculated using nitrate dilution models, using NJDEP's factors for nitrate loads from septic systems.
6. Recharge by HUC14 subwatershed should be used as the basis for nitrate dilution, consistent with other RMP analyses. Drought ground water recharge should be used as a conservative factor to address nitrate impacts in smaller watersheds, headwaters areas and aquifers with limited storage capacity, all of which are common in the Highlands Region. Recharge values should be based on 2002 land use/land cover, as the data most closely related to the 2004 adoption of the Highlands Act and the most recent information available to the Council.
7. The models should be applied to privately owned, undeveloped, non-preserved areas only.

8. The nitrate target for the Conservation Zone in the Planning Area should recognize that existing nitrate concentrations are elevated in significant part by agricultural practices. There is an opportunity for water quality enhancement through more thorough implementation of agricultural best management practices (BMPs).
9. The nitrate target for the Protection Zone in the Planning Area should recognize that existing low nitrate concentrations reflect minimal agriculture and development land uses. The impacts of additional development will be more difficult to offset through improvements to existing land management practices.